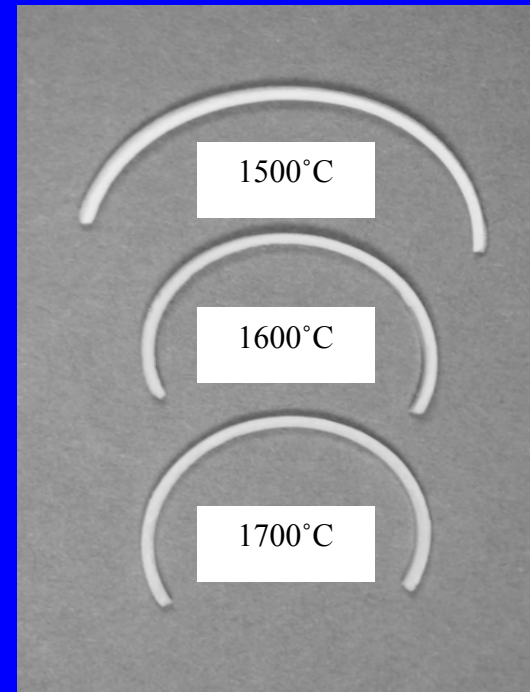


FORMING OF CERAMICS DURING FIRING WITHOUT THE APPLICATION OF EXTERNAL PRESSURE

S. J. Lombardo, University of Missouri, DMR 0203136

A ceramic forming method has been developed whereby initially flat substrates deform into the desired shape at high temperature, without the application of external pressure. Deformation is accomplished by applying a thin coating of one material onto a ceramic substrate and then heating to high temperature for a set time period.

Examples of beams deformed at different temperatures are shown to the right.



Initially flat alumina substrates were coated with magnesium oxide and were then heat treated at different temperatures for 4 hr.

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Ph. D. student C. S. Kim (shown at right near a high temperature dilatometer) and undergraduate researcher T. Redfearn are working on developing this forming process. The two researchers have contributed to three oral presentations made at the Annual Meeting of the American Ceramic Society, three conference proceeding articles, and one journal publication, with other manuscripts in progress. The researchers have also collaborated with Drs. F. Feng and A. Winholtz from the Department of Mechanical Engineering.

